Amendments to the Specification

All of the page numbers and paragraph numbers in this Amendment refer to the page numbers and paragraph numbers in the version of the specification as of the date of mailing of the Notice of Allowability, that is, September 15, 2005.

1. Page 33, please replace the paragraph numbered [0132] with the following rewritten paragraph:

- period,
- worst-case execution time,
- release time,
- deadline,
- permitted range of the offset,
- the set of data that each segment reads and writes,
- any exclusion relationships with other process segments,
- any precedence relationships with other periodic process segments.

2. Page 33, please replace the paragraph numbered [0136] with the following rewritten paragraph:

- period,
- worst-case execution time,
- release time,
- deadline,
- permitted range of the offset,
- the set of data that each segment reads and writes,
- any exclusion relationships with other process segments,
- any precedence relationships with other periodic process segments.

3. Pages 96-97, please replace the paragraph numbered [0315] with the following rewritten paragraph:

In the case that A-h-k process a_3 remains asynchronous, because the latitude of a_3, $La_3 = da_3 = 114$, as well as the latitudes of a_0 and a_1 are greater than the latitudes of the periodic processes p_4, p_6, p_7 in meeting their respective deadlines, the worst-case computation times of p_4, p_6, p_7 should be adjusted to leave "room" for a_0, a_1 and a_3's worst-case computation time as follows:

$c_{p4}' = ~~c_{p4} - c_{a0}~~$ $c_{p4} + c_{a0} + c_{a1} + c_{a3} = 26 + 2 + 2 + 10 = 40$

$c_{p6}' = ~~c_{p6} - c_{a0}~~$ $c_{p6} + c_{a0} + c_a1 + c_{a3} = 26 + 2 + 2 + 10 = 40$

$c_{p7}' = ~~c_{p7} - c_{a0}~~$ $c_{p7} + c_{a0} + ca1 + c_{a3} = 16 + 2 + 2 + 10 = 30$

The pre-run-time scheduler will first construct the feasible pre-run-time schedule illustrated in Figure 8 for the set of P-g processes p_4, p_5, p_6, p_7. Then the simulation procedure for determining the worst-case response time of an A-h-k-a process can be used to determine a_0, a_1, a_2, a_3, a_9's worst-case response time. A-h-k-a process a_3's worst-case response time happens when a_3 arrives at time 7, while a_2 which excludes a_3 arrived one time unit before a_3 at time 6. If a_0, a_1 which have less latitude than a_3 in meeting their respective deadlines, arrive at the same ~~time 6~~ time as a_3, that is, at time 7, a_0 will preempt a_2 and execute from time 7 to time 9, a_1 will execute from time 9 to time 11, a_2 will continue its execution from time 11 to time 20, p_8 will first execute from time 20 to time 30; at time 30 p_8 will be preempted by p_5 which executes from time 30 to time 46; at time 46 p_8 will continue its execution from time 46 to time 52. At time 52, because $La_3 = da_3 = 114 < Lp_4 = dp_4 - rp_4 = 200 - 0 = 200$, a_3 will execute from time 52 to time 62. A-h-k-a process a_3's worst-case response time $REa_3 = \RE(a_3, ts)\ = RE(a_3, 7) = e'(a_3) - Ra_3 = 62 - 7 = 45 \leq da_3 = 114$. Similarly, one can verify that the worst-case response times of all the other asynchronous processes are all less than or equal to their respective deadlines, as shown in ~~Figure 8~~ Figure 9.

4. Page 27, at the end of the page, please add the following paragraph:

Figure 33 shows a pre-run-time schedule in which every periodic process must execute strictly in its reserved time slot.

5. Page 116, after paragraph [0356], please add the following paragraph:

Figure 33 shows the pre-run-time schedule which is identical to Figure 22, except that it does not have the time slots for $newp_{A0}$, $newp_{A1}$, $newp_{A2}$, ..., and without the time slot for a_E in Figure 22.